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June 6, 2003

L-03-079

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Subject: Beaver Valley Power Station, Unit No. 1 and No. 2
BV-1 Docket No. 50-334, License No. DPR-66
BV-2 Docket No. 50-412, License No. NPF-73
Response to a Request for Additional Information in Support of License Amendment Requests Nos. 300 and 172

This letter provides FirstEnergy Nuclear Operating Company (FENOC) responses to the NRC Request for Additional Information (RAI) dated May 2, 2003, regarding License Amendment Requests (LAR) 300 and 172. The LARs were submitted by FENOC letter L-02-069 dated June 5, 2002. The changes proposed by the LARs will revise the Beaver Valley Power Station (BVPS) Units 1 and 2 Technical Specifications to permit each unit to be operated with an atmospheric containment.

The RAI and responses are provided in Attachment A of this letter. The responses contained in this transmittal have no impact on the proposed Technical Specification changes, or the no significant hazards consideration, transmitted by FENOC letter L-02-069.

No regulatory commitments are contained in this letter. If there are any questions concerning this matter, please contact Mr. Larry R. Freeland, Manager, Regulatory Affairs/Performance Improvement at 724-682-5284.

I declare under penalty of perjury that the foregoing is true and correct. Executed on June 6, 2003.

Sincerely,

L. William Pearce

A001

Attachment:
A. Responses to RAI dated May 2, 2003

c: Mr. T. G. Colburn, NRR Senior Project Manager
Mr. D. M. Kern, NRC Sr. Resident Inspector
Mr. H. J. Miller, NRC Region I Administrator
Mr. D. A. Allard, Director BRP/DEP
Mr. L. E. Ryan (BRP/DEP)

Attachment A to L-03-079
Responses to May 2, 2003 RAI

REQUEST FOR ADDITIONAL INFORMATION (RAI)
BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2 (BVPS-1 AND 2)
SUBATMOSPHERIC TO ATMOSPHERIC CONTAINMENT CONVERSION
DOCKET NOS. 50-334 AND 50-412

The Nuclear Regulatory Commission (NRC) staff has determined that the information below will be needed for the staff to complete its review of the licensee's request for amendment to allow conversion of the BVPS-1 and 2 containments from subatmospheric to atmospheric operation. As part of that request, the licensee requested selective implementation of an alternate source term in accordance with Regulatory Guide 1.183, "Alternate Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," and Title 10 of *Code of Federal Regulations*, Section 50.67.

1. Table 5.3.6-1 of the June 5, 2002, submittal tabulates the unfiltered emergency mode leakage as 30 cfm. However, Table 2.0.11-1 in the RAI response dated January 30, 2003 utilized an unfiltered intake rate of only 10 cfm. Please explain why 30 cfm was not used in establishing the main steamline break (MSLB) analysis scaling factors.

Response to RAI Item 1

Unfiltered in-leakage of 30 cfm was not used in establishing the main steamline break (MSLB) analysis scaling factors, in order to assess the incremental impact of control room emergency bottled air pressurization system (CREBAPS) elimination on the current analyses of record for the MSLB, which used 10 cfm. This value is reported in both Updated Final Safety Analysis Reports (UFSARs), and has been consistently used in control room habitability analyses at Beaver Valley Power Stations (BVPS), as recommended in the Standard Review Plan, Section 6.4, for ingress and egress for control rooms not equipped with double door vestibules.

For containment conversion a selective application of Alternative Source Term (AST) was requested for the loss of coolant accident (LOCA) and the control rod ejection accident (CREA), since these are the only design basis accidents affected by containment conversion. These analyses used an analysis value of 30 cfm for control room in-leakage (as shown in Table 5.3.6-1 of the June 5, 2002 submittal) which is more conservative than 10 cfm, the current design and licensing basis value.

FirstEnergy Nuclear Operating Company (FENOC) is currently developing an Extended Power Uprate (EPU) license amendment request (LAR) for BVPS that is based on the full implementation of AST for the dose consequence analyses. These analyses have been performed with a control room unfiltered in-leakage of 30 cfm in order to provide BVPS with improved operational flexibility for EPU conditions. This value consists of an allowance of 10 cfm for ingress/egress, plus 10 cfm for other vulnerabilities on the

control room boundary, plus a further allowance of 10 cfm to allow for potential degradation between successive surveillance tests. Note that AST analyses of the MSLB and locked rotor accident (LRA) events in support of the EPU project demonstrate that the control room remains within the acceptance criteria of 10 CFR 50.67 and RG 1.183 with the higher unfiltered in-leakage value of 30 cfm.

The in-leakage value of 30 cfm was determined based on experience gained during the control room tracer gas testing conducted at BVPS in early 2001 in support of the proposed containment conversion and EPU projects. The testing was performed with the control room pressurized to nominal pressure, following the guidelines in NEI 99-03, "Control Room Habitability Guidance," and ASTM E741-95, "Standard Test Method for Determining Air Change in a Single Zone by Means of a Tracer Gas Dilution." Control room operators were allowed ingress and egress in order to perform their duties and shift turnovers during the test. The tracer gas test in-leakage result for the pressurized mode was a mean measured value of 35 cfm using the Unit 1 fan and 0 cfm using the Unit 2 pressurization fan.

By testing individual components, the in-leakage associated with the pressurized mode using the Unit 1 fan was attributed to two damper pairs in the normal ventilation flowpath. These dampers were subsequently repaired and retested to acceptable leak rates, < 0.333 cfm per damper, at operating differential pressures. Based on the test measurements, the repaired system was judged to meet the control room in-leakage value of 10 cfm used in the current analyses.

In conclusion, the design and licensing basis value for unfiltered in-leakage into the control room with the ventilation system operating in the emergency mode will remain as 10 cfm for the two BVPS units following NRC approval of the selective implementation of AST in support of the containment conversion LAR. FENOC plans to change the design and licensing value to 30 cfm following NRC approval of the planned EPU LAR which will include full implementation of AST.

2. NRC staff question 2.0.6 (NRC letter dated November 22, 2002) requested the licensee to provide a tabulation of assumptions used in the MSLB and locked rotor accident analyses. In its response, the licensee directed the NRC staff to earlier license amendments that had been approved by the NRC. The licensee's March 28, 2001, submittal (supporting Amendment No. 244 issued September 28, 2001, for BVPS-1) included BVPS-1 calculation ERS-SFL-95-008 revision 7. Assumption 2.14 of that calculation listed an X/Q value of 2.43E-3 sec/m^3. An adjacent note stated that this was the value for the turbine building and that it was conservative. The NRC staff compared this value to the newly calculated X/Q values tabulated in Table 5.3.4-2 of the June 5, 2002, submittal. The value of 2.43E-3 sec/m^3 exceeded the newly calculated values tabulated for the main steam (MS) relief valves. Thus, the earlier conclusion that the value was conservative is still true. The situation for

BVPS-2 is not as clear. The May 12, 2000, submittal (supporting Amendment Nos. 237 and 119 for BVPS-1 and 2, respectively, issued March 22, 2001) included marked-up pages for the BVPS-2 Updated Final Safety Analysis Report (UFSAR). The BVPS-2 UFSAR Table 15.0-14 shows the turbine building 0-8 hour X/Q as 2.72E-4 sec/m^3. Table 5.3.4-3 of the June 5, 2002, submittal, which tabulates newly determined X/Q values, shows the BVPS-2 MS relief valves to BVPS-2 control room intake dispersion to be more limiting with a value of 5.01E-4 sec/m^3. The NRC staff did not have a comparable calculation for BVPS-2. However, the NRC staff's confirmatory calculation performed for the current amendment shows a control room dose greater than that documented in the May 12, 2000, submittal with a magnitude comparable to the difference in X/Q values. Please review the BVPS-2 calculation and confirm that the most conservative X/Q value was used in the BVPS-2 MSLB analysis.

Response to RAI Item 2

As noted in RAI Item 2, above, and the May 12, 2000 and March 28, 2001 submittals, the control room atmospheric dispersion factors (X/Qs) utilized in the MSLB analyses for BVPS Units 1 and 2 are based on the conservative assumption that the environmental release following a MSLB occurs from the turbine building.

The newly calculated control room X/Q values developed using ARCON96 methodology to support the re-analysis of the LOCA and the CREA, and presented in Table 5.3.4-2 of the June 5, 2002 submittal, do not include the turbine building as a release point. The X/Q values from Table 5.3.4-2 called out in RAI Item 2, above, represent the MSIV release point, which is from the main steam valve room. Therefore, the newly calculated X/Q values (from the main steam valve room) are not comparable to the X/Q values (from the turbine building) presented in the previous submittals.

The on-site dose consequence analyses performed in support of the planned EPU are being performed using the ARCON96 methodology. Therefore, following NRC approval of the planned EPU and full implementation of AST, all BVPS on-site dose consequence analyses will utilize X/Q values determined by the ARCON96 methodology.